DELAWARE CENTER FOR THE INLAND BAYS

Inland Bays Journal

SUMMER 2017

Citizens are the Voice of the Bays

By Andrew McGowan, Environmental Scientist, CIB

A key role of the Delaware Center for the Inland Bays is to catalyze citizen action to protect the Inland Bays. The Center's Your Creek program works with local stakeholders and citizen scientists to both complete meaningful research and engage communities to improve the quality of the waterways in their backyards.

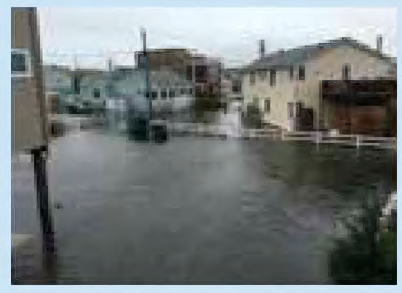
The Your Creek program analyzes the health of individual tributaries of the Inland Bays using data collected by natural resource agencies and citizen scientists while engaging local stakeholders both in the data collection process and in using that data to advocate for policies and practices that will result in cleaner waterways.

This is especially important in places like the Dirickson Creek watershed. Dirickson Creek is the largest of three tributaries that flow into Little Assawoman Bay. Its watershed is approximately 20 square miles and spans an area that was formerly a part of the Great Cypress Swamp stretching from the middle of Delaware to the Atlantic Ocean. As the land was settled in the 19th and 20th centuries, ditches were dug to drain the land for agriculture. These ditches, carrying drainage from agricultural fields (and

(continued on page 6)

Kayaking down Dirickson Creek

What's Inside



Senator Carper's Statewide Climate Change Tour Stops in Dewey Beach, see page 3.

Area middle school students visit the James Farm, see pages 4–5.

A new strategy for nutrient management comes to the Eastern Shore, see page 7.

The Inland Bays Journal is a publication of the Delaware Center for the Inland Bays. The CIB is a nonprofit organization and a National Estuary Program. The purpose of the Inland Bays Journal is to educate and inform citizens and visitors to the Inland Bays watershed about this "estuary of national significance."

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DEAR FRIENDS OF THE BAYS,

Over the past few months, enthusiasm for environmental protection has swelled up from all around the Bays. Support for the Center's work has been clear.

Our year-end appeal was our most successful ever. At a recent Water Warrior Workshop, held on behalf of the Delaware Clean Water Campaign, over 40 people devoted their Wednesday night to learn how to advocate for clean water. And this year, a bill that would generate millions for clean water projects will likely be introduced to Delaware's General Assembly.

People are motivated to protect the environment that they love and that sustains their local economy. In addition to becoming involved in environmental issues themselves, they are supporting groups who work on the issues every day.

The Center for the Inland Bays is one of those groups. We are one of 28 National Estuary Programs who receive a grant from the US Environmental Protection Agency (EPA) that is leveraged with local support to clean up the Bays. The EPA grant supplies about half of the Center's revenue for education, research, and habitat restoration programs and is particularly important to the coordination of our partners in restoration.

In the new President's first full budget proposal, the EPA is cut by 31%. This includes the elimination of the National Estuary Program and cuts to other clean water programs central to restoring the quality of Delaware's bays and streams. Unfortunately, the rationale that such programs are local responsibilities does not help Delaware as it grapples with a nearly $400 million budget deficit. It also misses the fact that hundreds of thousands of people from other states travel every year to enjoy our beautiful waterways. Clean, fishable, swimmable Inland Bays don't just benefit Delawareans.

In considering the President's proposal, the United States Congress now has a wonderful opportunity to sustain their commitment to investing in clean water. The improvements to the nation's estuaries realized over time have resulted from shared commitment amongst individuals, businesses, and governments of all levels. The National Estuary Program has excelled in utilizing the federal government's investment by leveraging each EPA dollar with 19 dollars in local funds. Since the year 2000, the Program has protected and restored more than 2 million acres of America's vital coastal habitats.

Today I ask that as you enjoy the best the Bays have to offer this summer, please consider your investment in the environment and what you can do to protect it.

Sincerely,

Chris Bason
Executive Director

CIB MISSION

To preserve, protect and restore Delaware's Inland Bays, the water that flows into them, and the watershed around them.

Senator Carper's Statewide Climate Change Tour Stops in Dewey Beach

By Emily Seldomridge

Photo credit: Laura Walter, Coastal Point

To honor Earth Day, Delaware Senator Tom Carper visited Dewey Beach as part of a statewide tour to observe firsthand the impacts of climate change on The First State. As a low-lying area, Sussex County is particularly vulnerable to coastal storms, sea level rise, and flooding. As coastal flooding becomes increasingly common, developing and implementing strategies to adapt and mitigate these impacts will be crucial to the continued viability of coastal communities.

"The average elevation across the state of Delaware is 30 feet above sea level. The elevation of the next lowest lying state, Florida, is 70 feet. When it comes to sea level rise caused by climate change, Delaware is the canary in the coalmine," said Senator Carper. "I challenge anyone who thinks sea level rise isn't a serious threat to our communities to come visit Delaware and see the important research going on at the Center for Inland Bays. Our towns and state rely on the science and research the Center produces to make smart investments and mitigate the effects of climate change now and for years to come."

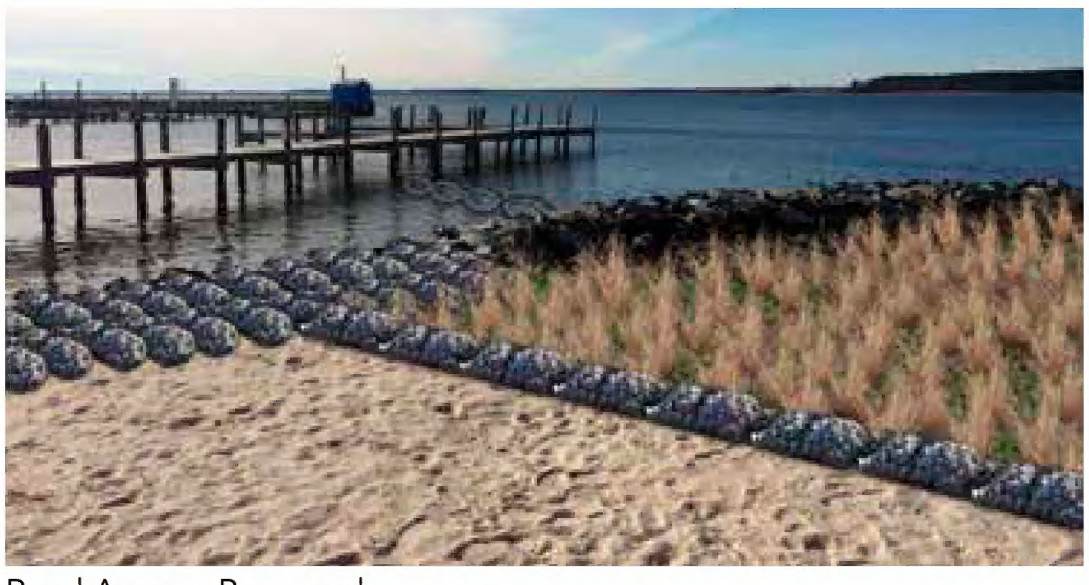
The Town of Dewey Beach is taking the lead in adapting to the effects of climate change. In 2016, Dewey partnered with CIB to develop a Stormwater Master Plan to address flooding from rain events and from bayside tidal flooding events.

Out of this planning effort grew an innovative idea for an implementation project to reduce the risk of flood damage to Read Avenue while maintaining critical shoreline habitat.

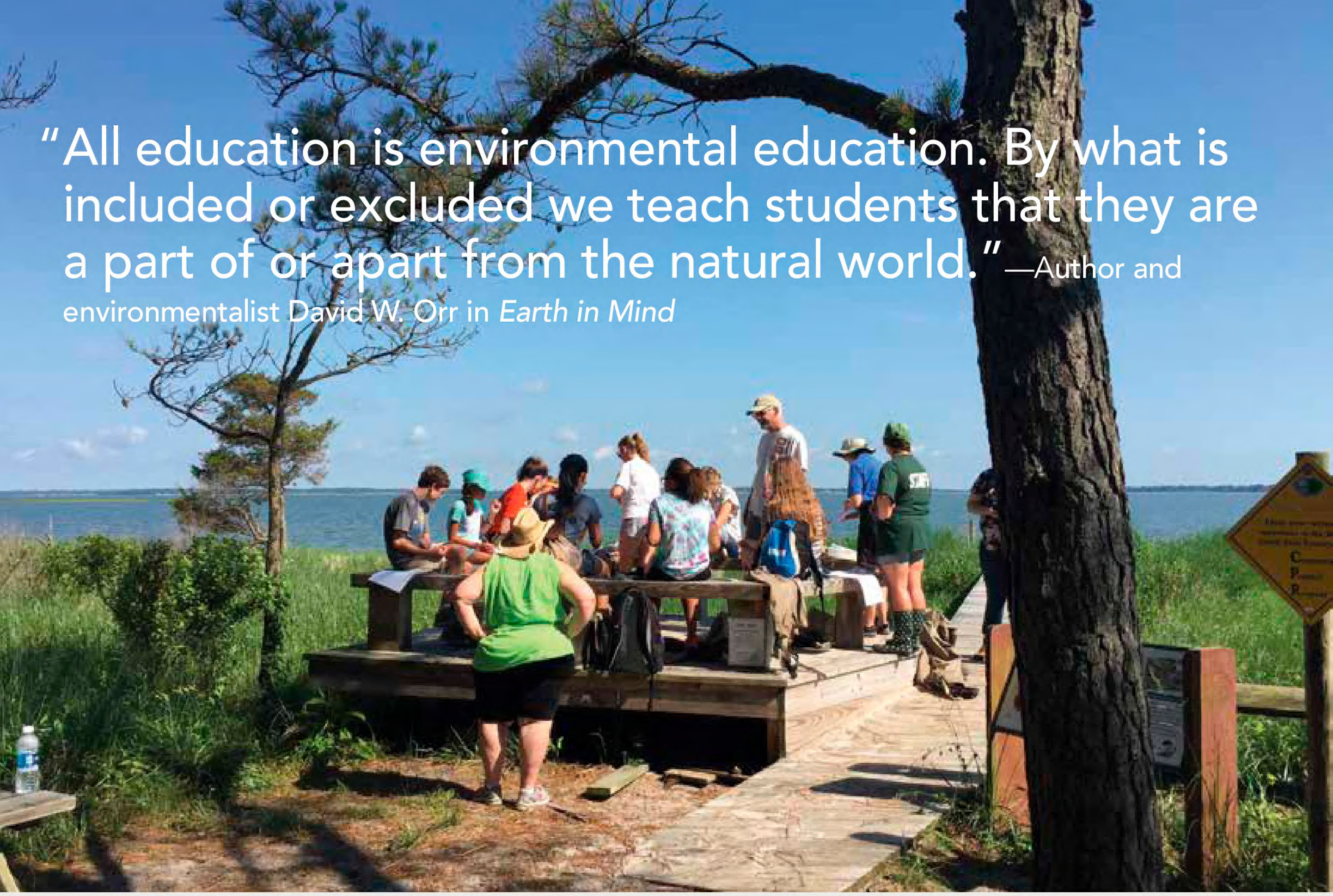
The project will retrofit existing stormwater infrastructure with a tide gate (to minimize tidal flooding) and will construct a living shoreline. The shoreline will incorporate oyster shell bags to reduce the wave energy hitting the sandy beach, preserve and enhance the existing marsh, and elevate and stabilize the existing dune. The project will also include a footpath to encourage access to the bay at a single entrance so that erosion of the living shoreline from foot traffic is minimized.

In February, Dewey Town Council unanimously approved contributing matching funds toward a Delaware Community Water Quality Improvement grant application for project implementation. This spring the grant was awarded to the Center.

Read Avenue Now



Read Avenue Proposed


"All education is environmental education. By what is included or excluded we teach students that they are a part of or apart from the natural world." —Author and environmentalist David W. Orr in *Earth in Mind*

JAMES FARM MIDDLE SCHOOL PROGRAM GETS KIDS OUTSIDE

By Morgan Pitts, Education and Outreach Coordinator, CIB

While modern distractions such as smartphones and tablets increasingly disconnect us from the world around us, the Center's education program strives to reconnect students and the public to the natural world.

Every spring and fall, the Center welcomes hundreds of students to the James Farm Ecological Preserve. At the James Farm, we lead educational programs with a goal of reconnecting students to nature while following Next Generation Science Standards. Participants learn about the ecological processes and systems behind the scenes (unless you know where to look) in the Inland Bays' watershed.

The work that we do at the James Farm is an invaluable part of the students' education and development. Research has demonstrated that participation in environmental education programs leads to positive educational and developmental outcomes as students are able to learn experientially and work in teams in a natural setting.

After participating in environmental education programs, students demonstrate:

- Knowledge gains across multiple disciplines including the environment, science, math and more;
- Improved emotional and social skills, such as self-esteem, character development, team work and leadership skills;
- Academic skills (21st Century skills), such as critical thinking, oral communication, analytical skills, problem solving and higher-order thinking;
- Increased motivation to learn and enthusiasm, and;
- Civic interest and engagement including civic responsibility, empowerment and the ability to take action.[1]

During each trip, we encourage students to get in touch with nature—literally. Students get down in the dirt to take soil samples and learn about the different physical characteristics of upland and lowland soils. They strap on waders and get in the water with a seine net to catch the bay critters that many people don't realize are all around them when they swim (don't worry—they're mostly harmless…though anyone who has been on the wrong end of a blue crab or a jellyfish knows they can be annoying). And, we encourage them to

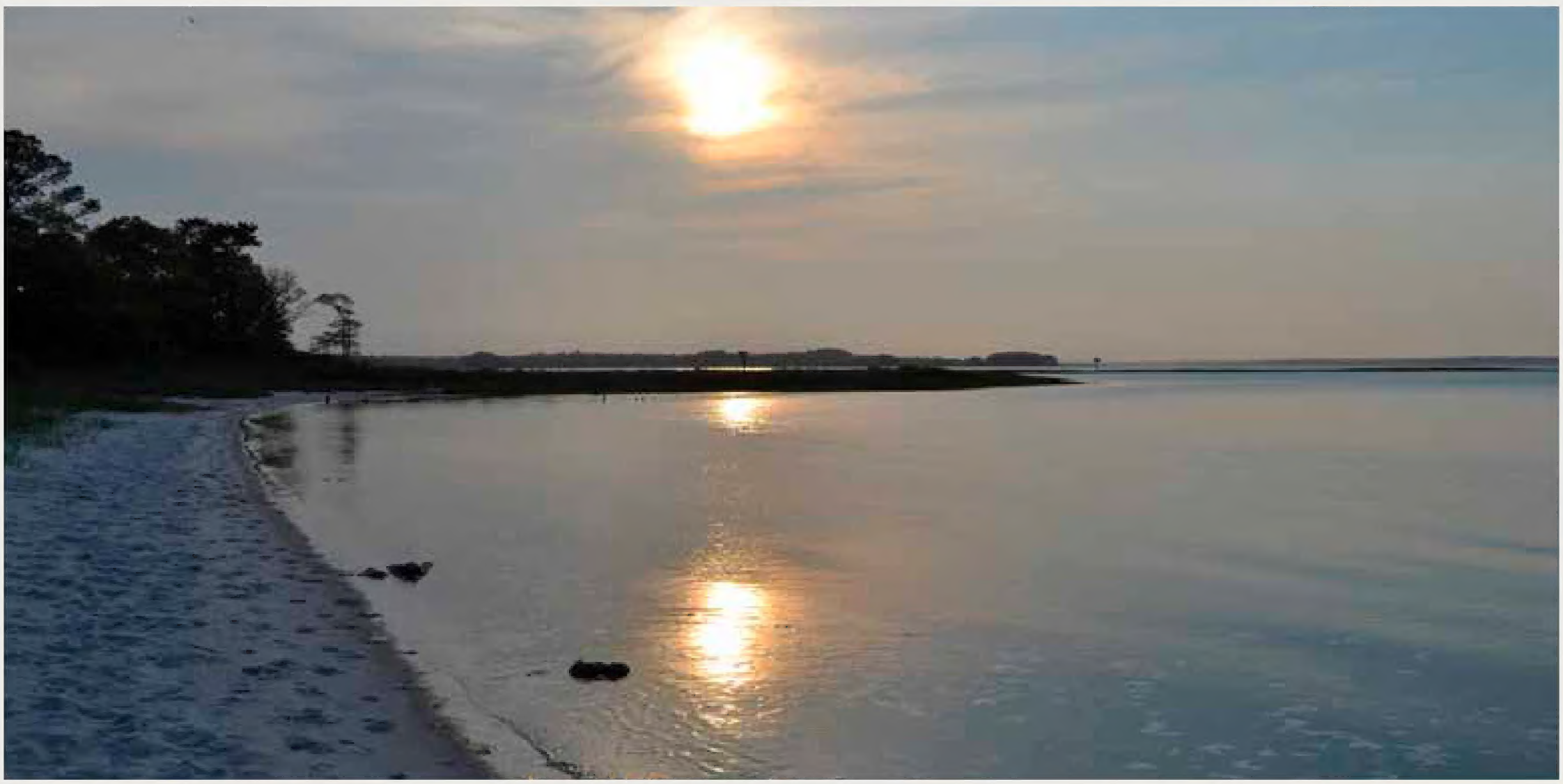
[1]*North American Association for Environmental Education. The Benefits of Environmental Education for K-12 Students. Stanford University. 2016.*

look up (hopefully with a little bit of wonder) at the trees that rise high above the forest floor and the array of wildlife that calls the James Farm home.

The wonder we hope to inspire is not some vague idealistic concept—it is teaching them that they are a part of something larger than themselves.

As students learn that they are connected to the natural world, their attitudes begin to shift. Those who may not have previously paid attention to nature find themselves building an enduring connection—even after just a single day program. In one study, six years after a single-day environmental education program, 80% of participants demonstrated increased appreciation for the environment, 77% had increased positive feelings about the conservation and preservation of wilderness, 59% demonstrated increased interest in the natural sciences and 96% thought the experience was one that every middle schooler should have.

We at the Center are proud of the role we get to play in these students' educations and we look forward to continuing to do our part to get kids outside. Even in an era where finding adequate funding for such programs can be challenging, we will continue to work to provide opportunities for students to experience the natural world. It is our hope that when these students leave us, they keep looking up and remembering that they are a part of the natural world.



(Dirickson Creek continued from page 1)

increasingly, developed areas) remain the primary source of fresh water to the creek to this day.

New trends in development make the public engagement aspect of our work with the Your Creek team increasingly important. Over the past two decades, large swathes of farmland have been converted to development along the Route 54 corridor between Fenwick Island and Selbyville. Originally, this area was very rural with only a summertime influx of visitors to the coastal towns. Today, while some residential communities are primarily seasonal, many are now permanent residences that support a year-round business community. Between 1992 and 2012, the amount of developed land (for housing developments, commercial centers and infrastructure) has almost doubled.

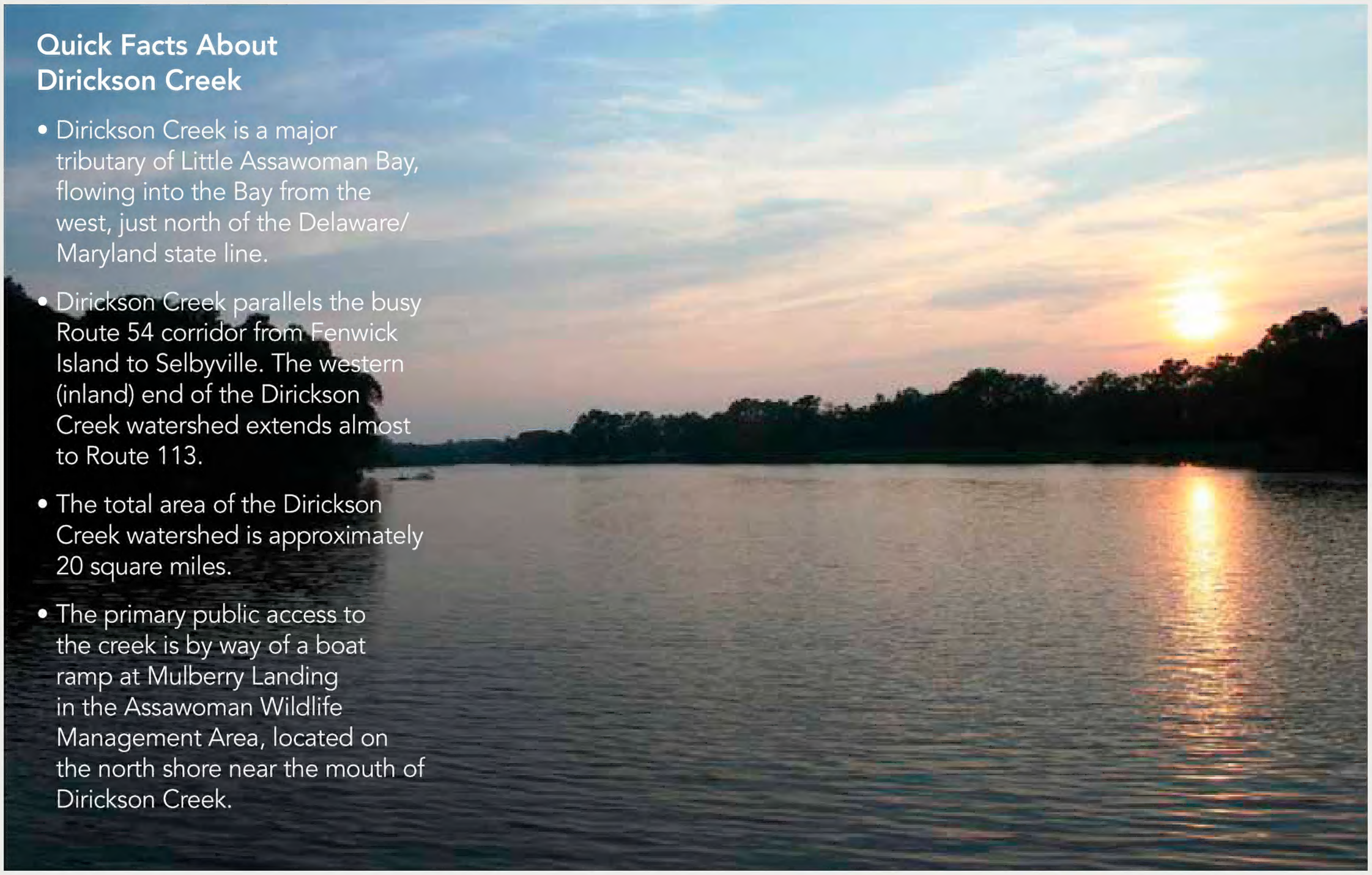
While this shift away from agriculture has been partly credited with improved water quality in the Inland Bays due to associated reductions in fertilizer runoff, an increase in residential land use means that ensuring homeowners make bay-friendly choices is increasingly important to the health of the Bays.

There are many things that you can do to improve water quality in your back yard ranging from reducing fertilizer usage to advocating for policies that support clean water at the state and local level. To learn more about how you can become involved or advocate for cleaner bays, please visit inlandbays.org.

YOU CAN HELP

What can you do to improve water quality?

- Refrain from fertilizing lawns. Excess fertilizer runs off into the Bays in the form of nutrient pollution. If you landscape with native plants, your fertilizer needs should be lower.
- Clean up after your pets. Just one ounce of dog feces contains 23 million fecal coliform bacteria (nearly twice that of human waste) which are known to cause cramps, diarrhea, intestinal illness and serious kidney disorders in humans.
- If you have a septic system, ensure it is inspected and pumped at least every three years.
- If you live on the water, plant a buffer of native trees, shrubs and grasses between your yard and the water's edge. This will protect water quality and improve habitat for wildlife.



Quick Facts About Dirickson Creek

- Dirickson Creek is a major tributary of Little Assawoman Bay, flowing into the Bay from the west, just north of the Delaware/ Maryland state line.
- Dirickson Creek parallels the busy Route 54 corridor from Fenwick Island to Selbyville. The western (inland) end of the Dirickson Creek watershed extends almost to Route 113.
- The total area of the Dirickson Creek watershed is approximately 20 square miles.
- The primary public access to the creek is by way of a boat ramp at Mulberry Landing in the Assawoman Wildlife Management Area, located on the north shore near the mouth of Dirickson Creek.

ECOBAY KAYAK OFFERS BAY-BASED SUMMER FUN

By Katie Goerger, Communications Specialist, CIB

Delaware's Inland Bays are a popular spot for boating, swimming, fishing, and relaxation. Visitors relish the opportunities offered by these shallow waters and sandy shores—seeking adventure and an experience unique to Delaware's Inland Bays.

Each summer, Ecobay Kayak & Stand Up Paddle helps visitors experience just that. Now in their 13th year, Ecobay Kayak operates off of the shore of the James Farm Ecological Preserve, offering kayak and standup paddle board rentals, summer camps, and eco-excursions.

Their goal? To offer visitors a glimpse of why the Ecobay team loves living in coastal Delaware and to show off a unique environment that visitors might not see otherwise. As a concessionaire at the James Farm, a portion of every rental fee comes to the Center. So, when you enjoy a kayak eco-tour, stand-up paddleboarding experience or summer camp, you are supporting the CIB as well!

"[We love]…the abundant wildlife & waterfowl that call that section of the Inland Bays home. The James Farm is a breath of fresh air and as long as we all take care of her she will be around to be loved for many many years," said Ecobay owner Lisa Daisey.

Next time you're looking for a bit of adventure, head to the James Farm Ecological Preserve in Ocean View for a brief hike, followed by a uniquely Delaware experience with EcoBay Kayak & Stand Up Paddle.

Visit them online at ecobaykayak.com.

A NEW APPROACH TO MANAGING NUTRIENT POLLUTION FROM POULTRY OPERATIONS

By Morgan Pitts, Education and Outreach Coordinator, CIB

When most people consider the environmental challenges associated with poultry farming, they usually think of chicken manure. But, there is another source of nutrient pollution from poultry operations—and it not only threatens water quality, but the health of the flocks and the quality of life of surrounding communities.

Routine mortality is a reality for all agricultural operations and it is a daily part of managing large poultry farms. Not all of the chickens raised on a poultry farm will end up on a plate and, until now, birds that died on the farm were typically composted there. Compost piles of dead birds presents a number of challenges. In addition to becoming a source of nutrient pollution to the Bays, they can also be a nuisance to neighbors and attract pests that can spread disease. The compost material is also more challenging to utilize than chicken manure. It must be spread over open land as it is not a suitable fertilizer for all crops. It then ends up in the Bays as nutrient-rich runoff.

A Millsboro-based company, Farm Freezers, LLC, is trying to improve this process. The company has partnered with several state and federal agencies to develop a new process for managing this material. The company sells large freezer storage units to poultry growers in the area for them to store daily chicken mortalities. At the end of each growing cycle, the freezers are picked up and taken to a rendering plant where through a high-heat, high-pressure cooking process, the material is turned into a protein rich meal and pure fat that can be used in the manufacture of fish food and biofuels, respectively.

Public agencies played a significant role in the development of the process. The initial pilot project was funded by the Delaware Department of Agriculture and the Delaware Nutrient Management Commission. Since then, the company has partnered further with the Natural Resource Conservation Service to enhance the operation of their system and has worked with the Sussex County Conservation District (SCCD) on outreach and farmer education. In addition, the SCCD is currently managing a $1 million fund to help beginning farmers access this technology.

Thanks to the hard work of the company's founders, Victor Clark and Terry Baker, and the valuable partnerships they were able to build, it is possible to implement a solution that addresses several problems: it reduces nutrient pollution, safeguards animal health and improves quality of life in farming communities, and it's being done by a company right here in the Inland Bays' watershed!

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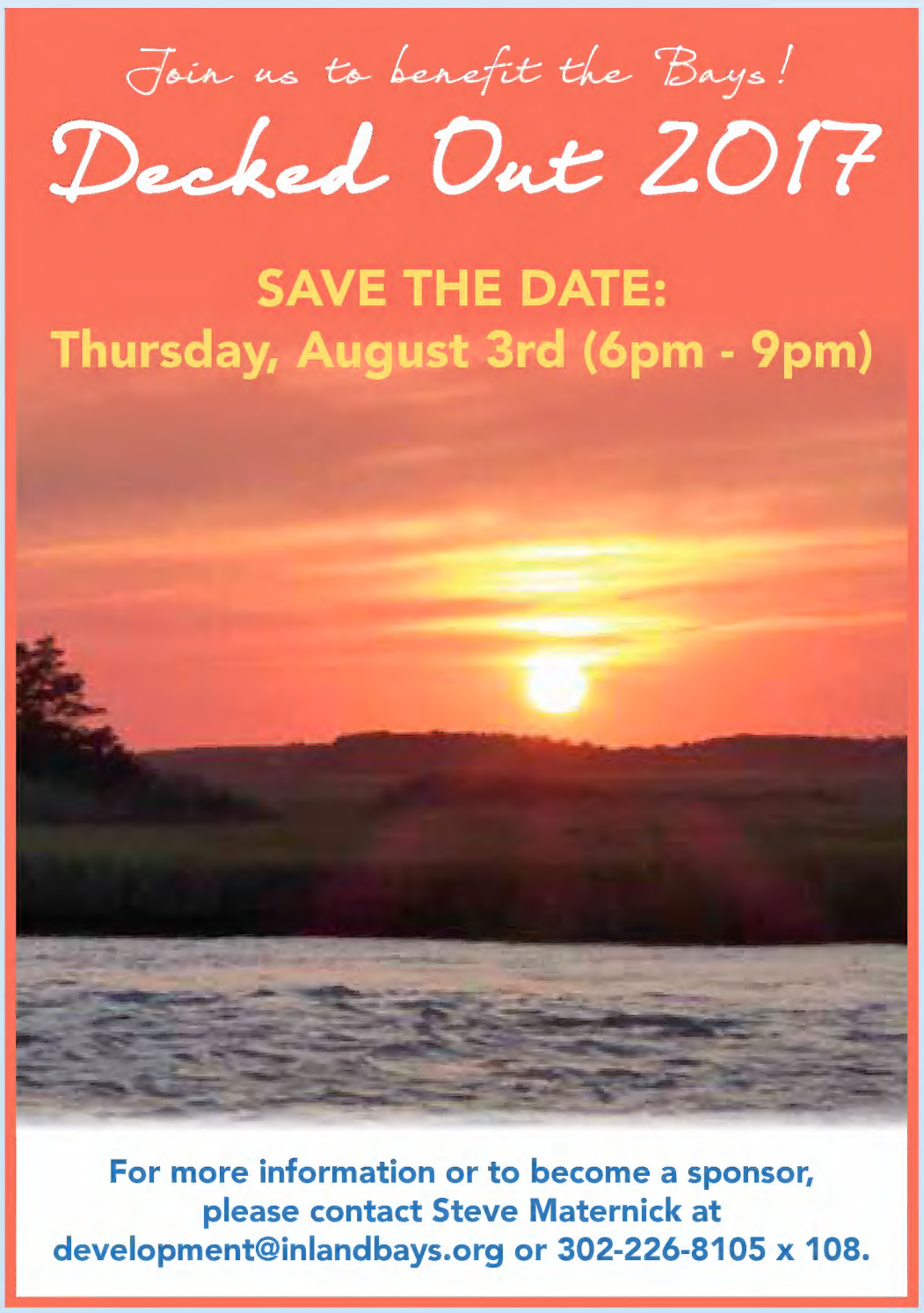
Join us to benefit the Bays!
Decked Out 2017
SAVE THE DATE:
Thursday, August 3rd (6pm - 9pm)
For more information or to become a sponsor,
please contact Steve Maternick at
development@inlandbays.org or 302-226-8105 x 108.

Join us for DECKED OUT and help protect, preserve, and restore Delaware's Inland Bays!

Designed to both Friend-raise and Fund-raise, Decked Out will be held at the Center for the Inland Bays, overlooking the lovely Indian River Inlet.

Decked Out will feature a raw bar, specialty cocktails, live music, auction and feature tastings from area restaurants. All with a fun Bay centric theme!

All proceeds benefit the Center for the Inland Bays, a 501c3 organization.

For tickets, visit inlandbays.org.

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